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THE ROLE OF MONETARY POLICY IN THE ECONOMIC RECOVERY FOLLOWING THE 2008-2009 GLOBAL FINANCIAL CRISIS WITH SPECIAL REFERENCE TO SMALL STATES

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THE ROLE OF MONETARY POLICY IN THE ECONOMIC RECOVERY FOLLOWING THE 2008-2009 GLOBAL FINANCIAL CRISIS WITH SPECIAL REFERENCE TO SMALL STATES

Carmen Saliba*

ABSTRACT

The objective of this paper is to analyse the role of monetary policy in the economic recovery following the global financial crisis of 2008 and 2009, with special reference to small states. The study is based on a desk-study utilising published data on 178 countries applied to an econometric model. The regression results showed that both monetary and fiscal measures had a statistically significant effect on the post-recession economic growth (i.e. during 2009 and 2010). The results also indicate that in the case of small states, as a group, monetary measures may have been more important than fiscal measures in mitigating the effects of the global recession.

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Introduction

This paper will analyse the role of monetary policy in the economic recovery following the global financial crisis of 2008 and 2009 with special reference to small states. For this purpose, this paper will test the hypothesis as to whether there is a statistically significant relationship between monetary measures and the rate of recovery following the 2008-2009 recession, across countries, keeping other variables, including fiscal measures, constant. The exercise will be conducted with special reference to small states. The regression method will be used, based on an equation inspired by the St. Louis Model. The analysis will be applied to a large number of countries, large and small, so as to assess whether there was a statistically significant relationship between economic growth in 2009 and 2010 in response to monetary and fiscal measures, keeping a number of control variables constant. An attempt will be made to assess whether the relationship for small states (with a population of about 2 million or less)¹ was different from that for larger countries.

Monetary policy is a stabilising measure adopted by the monetary authorities, generally central banks, mainly to overcome economic imbalances in an economy. The economic objectives associated with monetary policy include the maintenance of price stability with a low inflation rate and the enhancement of economic growth. Many studies have found that, due to their inherent characteristics, small states are more exposed to external conditions and therefore more economically vulnerable than other groups of countries, and this could limit the effectiveness of monetary policy in such states.

In addition monetary measures put in place in small countries may not be successful due to their limited institutional capacity, thin markets and weak transmission mechanisms.

Another tool of stabilisation is fiscal policy which is associated with governments' revenues and expenditures. It is generally accepted that high government deficits are destabilising. Here again one may expect that small states may face certain constraints mostly due to the fact that government expenditure contains a high component of overhead costs, which are difficult to downscale in proportion to the population.

Monetary and fiscal policies played an important role in the stabilisation measures during the 2008-2009 global financial crisis, as many countries adopted monetary and fiscal measures, involving expansion of money supply and increases (stimulus) in government expenditure.

The next section will proceed with a literature review on the role of monetary and fiscal policies as stabilising factors, and the financial architecture necessary for monetary policy to be effective with special reference to small states.

¹ Although small states are usually referred as those with a population of 1.5 million or less, the author decided to take 2 million population as a cut-off point.

Literature Review

Given the use of a modified form of the St. Louis model, the discussion on monetary and fiscal variables will focus on this model. This section also discusses the use of monetary policy during the recent financial crisis and the role of monetary policy in small states.

Monetary Policy vs Fiscal Policy for Stabilisation

There are two major schools of thought regarding the roles of monetary and fiscal policies in macro-economic stabilisation (Rahman, 2005). There are those that believe that monetary policy is more powerful than fiscal policy in achieving various economic goals (e.g. Friedman and Meiselman, 1963; Anderson and Jordan, 1968; Keran, 1969; Anderson and Carlson, 1970; Carlson, 1978; Seaks and Allen, 1980). Many of these use the St. Louis equation to provide empirical evidence to support their stand. The other group, influenced by Keynesian economics assign more importance to fiscal actions, often arguing that the St. Louis equation is mis-specified and this leads to biased results favour of monetary policy (Stein, 1980; Desai, 1981; and Batten and Hafer, 1983).

It is thought that monetary policy may foster sustainable growth by maintaining an environment of price stability, however it can also stabilise output around its potential growth path in the short and medium run (Papademos, 2003). Some authors (e.g. Ajisfe and Forolunso, 2002; Laurens and De La Piedra, 1998) also recommend the combination and coordination of both monetary and fiscal policy.

A Review of Empirical Work on Monetary Policy and Stabilisation

The history of empirical tests of the effects of monetary versus fiscal policy on economic stabilisation and growth is a lengthy one. An early work in this regard was the Friedman-Meiselman study for the Commission on Money and Credit (1963). In this study the authors, by calculating numerous regression equations for the period 1897-1958, compared the impact of spending changes of national income related to a Keynesian multiplier model with changes in money supply. They concluded that monetary policy was more effective than fiscal policy as economic stabiliser.

The general argument against the effects of fiscal policy was raised by the rational expectations school. Pelagidis and Desli (2004) argue that a state cannot aim to strengthen its growth rate and reduce unemployment through an expansionary fiscal policy. On the other hand, the same authors state that an economy cannot opt to solve budget deficits by printing money or borrowing since this will result in an increase in public debt, interest rates, and inflation. It will also have a negative impact on private investments and growth rates in the medium term.

Barro (1974) argues against discretionary fiscal policy, since this policy instead of inducing people to spend and increase domestic demand will instead stimulate people to save money for future increase in tax payments. Fiscal policy easing will later on result in

a tightened monetary policy and to overcome government debt higher taxes will be imposed (Pelagidis and Desli, 2004).

In his study on rational expectations, Holland (1985) concluded that expectations and institutional structures of a state, have an impact on monetary policy actions targeted for employment and real output. On the other hand, the author remarks that money supply growth will not have an impact on real output and employment if there is dissemination of information for the general public on expectations and institutional structures.

In a subsequent paper by Andersen and Jordan (1968) of the Federal Reserve Bank of St. Louis, evidence was presented that monetary actions had an impact on economic stabilisation policy whereas fiscal actions do not. The authors specified an equation to analyse the role of monetary aggregates in the movements of the following economic aggregates in the US economy: nominal GDP, output, prices, unemployment and interest rates. Most studies utilised the so-called St. Louis model which can be expressed in a simple way as:

$$\Delta Y = f(\Delta E, \Delta R, \Delta M, \Delta Z) \quad (\text{Equation 1})$$

Where:

- Y = total spending;
- E = a variable summarising government expenditure actions
- R = a variable summarising government taxing actions
- M = a variable summarising monetary actions
- Z = a variable summarising all other factors that influence total spending

These exogenous variables were suitably lagged. Using a four-quarter Almon distributed lag function, Andersen and Jordan concluded that at full employment, changes in money stock were related to changes in GNP. This led them to conclude that the US economic activity's response to monetary actions is larger; more predictable; and faster than fiscal policy actions. The Andersen-Jordan results supported the monetarist position: they demonstrated that by skillfully manipulating monetary aggregates, policy makers can achieve demand management outcomes that were thought to be possible only through fiscal policy actions (Hafer, 2001).

Anderson and Jordan's (1968) procedure was criticized by Schmidt and Waud (1973). In their study the authors analysed problems arising with the use of the Almon lag technique. When reviewing the model developed by Anderson and Jordan, they argued that the constraining technique led to biased results. Instead of using a four-quarter Almon distributed lag function they experimented with alternative lagging. They found that fiscal variables were more statistically significant than fiscal results attained by the Anderson and Jordan model. Hence, while Schmidt and Waud were unable to reject the importance of monetary policy, they were unable to conclude that fiscal policy actions are ineffective.

Keran (1969) applied the Anderson and Jordan (1968) model for a longer period 1919-1969 instead of 1953-1968. Keran's results were similar to Anderson and Jordan's. Monetary policy actions exceeded fiscal policy actions on the economic activities of the USA for all the sub-periods analysed, except during the period of World War II. Thus, Keran concluded that monetary policy has a central role in economic stabilisation programmes.

Anderson and Carlson (1970) developed a small model of the U.S. economy intending to explain the movements of certain key economic aggregates, namely nominal GNP, output (real GNP), prices, unemployment and short- and long-term interest rates. The model's focus was on the role of monetary aggregates, in particular, M1, in the determination of these economic variables. Their findings indicated that monetary policy actions on economic activity have a strategic role whereas fiscal actions are only effective in the short run.

Subsequently, Carlson (1986) argued that the properties of the St. Louis Model remained unchanged and monetary policy still continued to have a large short-run effect on total spending, output and employment. In the long run the effect on total spending is nearly reflected in the price level with little impact on unemployment and output. The author presented an alternative specification of the St. Louis model as developed by Anderson and Carlson (1970). His model included total spending, output and prices in rates of change; and also included energy prices and exports as exogenous variables. In order to avoid biasing the estimated standard errors, Carlson adjusted the equation which included prices, long term interest rate and unemployment. This approach reconfirmed the importance of monetary policy. Carlson (1986) concluded that in the long run monetary policy actions have a short run effect on total spending, output and unemployment. In the long run the effect of total spending is nearly reflected all in the price level and has little impact on output and unemployment. On the other hand, fiscal actions result in small short run effects which disappear quickly. A change in the energy prices can lead to a strong supply-side effect.

Belliveau (2011) applied an updated St. Louis equation for the United States economy. Belliveau included value added by the business sector as a measure of output and utilised annual data for cyclically adjusted government surplus and its components from 1956 to 2007 to estimate coefficients. His results indicate that both fiscal and monetary policy influenced output and stabilised the economy of United States. Belliveau also remarks that US policymakers' policy response to declining output during the recent financial crisis was the adoption of strong monetary and fiscal policies. The above studies all related to United States data. Empirical research results for the United States with the St. Louis model generally indicated that monetary policy had a stronger impact on United States economic stabilisation than fiscal actions.

Batten and Hafer (1983) applied a modified version of the St. Louis equation to six developed countries: Canada, France, Germany, Japan, United Kingdom and the United States. They utilised a growth rate version; estimated their equation and extended the sample period. They concluded that for all six countries changes in money growth

resulted more significant and have a lasting impact on their nominal income growths. The authors further concluded that in all selected countries, the relationship between monetary policy and income was stable whereas fiscal policy results were not.

Application of the St. Louis Model to Developing Countries.

Some studies relating to the St. Louis Model were applied to developing countries, in Latin America, Africa and Asia.

Darrat (1984) applied a modified model for the period of 1950 to 1981 for five Latin American countries: Brazil, Chile, Mexico, Peru and Venezuela. Annual time series data included GNP, money stock, government spending and exports. The regression results demonstrate that this type of equation can also be applied to several developing countries with different economic structures. The results suggest that export growth explains GNP growth movements and thus relates to the economic openness of countries selected. Nominal income changes in these countries are better explained by fiscal policy. Hence, Darrat concluded that to improve the economic stabilisation of Latin American developing countries fiscal policy is more effective than monetary policy.

Another study relating to developing countries is that produced by Bynoe (1994) who examined empirically the relative impact of monetary policy and fiscal policy influences in the economic activity in five African countries (Ghana, Kenya, Nigeria, Sierra Leone and Tanzania). The author employed a modified St. Louis-type reduced-form equation for the period 1965 to 1990 in order to analyse the role of fiscal and monetary policies on the economic activities in these countries. The results aimed to reveal the relationship between the two policies and their contribution to economic growth. Again, the modified version included exports as a measure of economic openness. The results suggest that monetary policy can be pursued more successfully in the economic activities of Ghana, Kenya and Nigeria. Fiscal policy resulted significant only in Nigeria. In none of the five countries did fiscal policy exert a greater influence than monetary policy. Hence, monetary policy influences on economic activities in African countries results more potent than those of fiscal policy.

Jawaid (*et al.*, 2010) analysed the effect of fiscal and monetary policy in Pakistan. They applied a model using annual time series data in logarithm form for the period of 1981 to 2009 for the coefficients of gross domestic product, money supply and fiscal balance. They concluded that for Pakistan monetary policy has a greater impact than fiscal policy on economic growth.

Characteristics of Small States

The most important common economic characteristics of small states relate to their small domestic markets, high degree of economic openness, and high dependence on a narrow range of exports, rendering these states very much exposed to external shocks. According to Briguglio *et al.*, (2006) this limits the development options of small states.

Naudé *et al.*, (2010) also argue that many small island developing states are also economically vulnerable since remittances are a major source of income for their economies. However, the same authors explain that while remittances decline during a global crisis, they have the tendency to increase in cases of natural disasters incurred in a local economy.

The economic success of many small states in spite of the inherent adverse effects of small size owes much to their economic governance (Briguglio *et al.* 2008). A number of small states are increasingly becoming knowledge- and service-based economies (Briguglio *et al.*, 2005). Curmi (2011) also shows that small states tend to rank high on governance indices, while Gatt (2005) says the same with regards to their human development index. Lack of scale forces many small states to adopt or peg their currency with that of their major industrial country trading partner (Chand, 2006).

Jayaraman (2006) argues that monetary policy's role is minimised with increased liberalisation and dismantling of exchange controls. The same author argues that although this led many small states to rely more on fiscal policy as their main tool for development, macroeconomic situations in some small states have become worrisome due to their fiscal excesses.

According to Chandan (2007), small states that are aspiring to build their economic resilience and integrate in the world of financial markets need to prioritise the role of money in their economic growth. Chandan explored the role of money in the production process in a sample of small island economies for the period 1980-2000. With the exception of Maldives, the estimated results confirm that the contribution of real money balances to the productivity capacity of an economy remains negligible for these participants.

Limited diversification possibilities and market thinness are other characteristics associated with small states (Briguglio, 2004). Market thinness in small states is the result of a small domestic market with a small number of suppliers and final buyers. The small size of domestic markets may limit small states' ability to diversify and substitute their imports; and also diversify their exports. Hence, Briguglio and Cordina (2004) argue that this outcome leads small states to highly depend on international trade, thus further intensifying their vulnerability. The authors further explain that this leads to market thinness and is the main reason why external shocks may have a high impact on the economies of small states.

Monetary vs Fiscal Policies in Small States' Economic Stabilisation

In small states, continuous macroeconomic shocks impose a big challenge for macroeconomic policy to reduce volatility (Chand, 2008). The author further explains that small states have limited capacity to use fiscal and monetary policies for stabilisation, because fiscal policy is constrained by their limited ability to raise capital;

while monetary policy actions are limited by their open capital accounts and in some cases fixed exchange rate regimes.

Jayaraman (2011) explains that a major challenge for small states is to ensure that spending on social protection is not compromised since small developing states do not afford flexibility in their fiscal or current accounts. Jayaraman (2008) also argues that in the case of small states fiscal stimulus efforts are considered as risky ventures unless there are the following supportive measures in place: (i) an increase in revenue collection efforts; (ii) implementation of changes in the current expenditure composition by removing wasteful expenditures and ambitious projects; and (iii) diverting saved resources towards concentrated labour and yielding projects including rehabilitation and upgrading infrastructure. Fiscal deficits may lead to monetisation of deficits if they are not being financed by domestic tax revenue efforts.

In another article, Jayaraman (2011) does not recommend the adoption of expansionary monetary policy to boost domestic demand in order to compensate for falling external demand for a limited range of exports and tourism services. There is also the risk that fiscal stimulus measures by means of subsidising existing firms and productions measures hinders the adjustment processes in related sectors.

Jayaraman (2001) employed a reduced form of the St. Louis equation to evaluate the impact of monetary policies adopted by the governments of the Small Pacific Island Countries (SPIC) on economic growth. Jayaraman's equation was modified to reflect the openness of the four SPICs by including their export performance and their proneness to periodical cyclones. The empirical results produced by Jayaraman show that monetary policy had a positive impact on growth in Fiji, Tonga and Vanuatu while in Samoa it had no influence. Jayaraman concluded that in order to facilitate the financial sector development in these four small island states, governments needed to implement ongoing macroeconomic and structural reforms. The author also suggests that well functioning systems for indirect instruments of their central banks, required growth in the primary and secondary markets for short term debt instruments.

Dahalan and Jayaraman (2006) estimated the impact of monetary and fiscal policies and exports on Fiji's economic growth. They applied a modified St. Louis equation by cointegrating a four-equation vector autoregressive system (VAR) by allowing estimation of long run relationships which are theoretically consistent. Variables utilised included real government expenditure to represent fiscal policy and real net foreign assets to represent monetary policy for the period 1970 to 2002. They examined the short run dynamics within the framework of the error-correction model (VECM) and examined the directions of the Granger causality of cointegrated variables. The authors used Pesaran's *et al.*, (2001) bounds testing procedure, that is, the auto-regressive distributed lag (ARDL). The study reveals that while in the short run Fiji's economic growth is positively influenced by fiscal policy and exports, and no impact by monetary policy; a long term relationship exists between the three variables and economic growth. In the long run the line of causation resulted in the following direction: from fiscal policy, monetary policy and exports to growth.

The Financial Crisis and Small States

There are mixed views regarding the impact of the global recession on small states. According to Hughes (2011) “the current global financial and economic crisis, unfolding since 2008, has exacerbated the structural problems and living standards of many small, open and vulnerable economies.” The impact of the global financial crisis in states around the world has varied and the geographical location and the level of economic development influenced the level of severity of the crisis on related state (Commonwealth Secretariat, 2009). For Hughes (2011) the impact of the crisis on many small states has been quite severe and the end of this crisis cannot be predicted.

The Commonwealth Secretariat concluded that several factors had an impact on the crisis of small states. First of all one had to analyse the conditions of the state as the financial crisis triggered. Then, proceed to assess the type of banking sector; the economic set up and level of vulnerability of the economy; and review the measures implemented by governments to overcome the crisis. The Commonwealth Secretariat concluded that to varying degrees all small states were impacted by the financial crisis of 2008-2009. However the task force of the Commonwealth specifies that in cases wherein the crisis did not impact the financial sector of a small state the crisis was retarded and moderate. In cases where the financial sector was affected by the crisis, the impact in related small state was immediate and severe as in the case of Iceland. Albeit some small states succeeded to adopt immediate adequate policies to mitigate the crisis, there were cases wherein implementation of measures and action was retarded. Finally, Hughes (2011) highlights that small states need to continue monitoring and managing the crisis, especially since they are unable to cope sufficiently on their own and have to rely on international support. In the medium term small states can increase their growth rates and their resilience by adopting measures which will enable them cope with crises and negotiate successfully with their international partners.

Key Policy Challenges and Way Forward for Small States

The Commonwealth Secretariat (2009) lists the actions required which can enable small states overcome their inherent vulnerabilities. First, there is the need to develop policies which can help small states overcome a crisis through an increase in growth and resilience.

Second, the international community can tailor measures to meet requirements of small states when adopting policies relating to reforms of international institutions; international tax agreements; and trade agreements. Ibitoye (2009) argues that the global economic downturn had a major impact on the real sector of small states due to a decline in external demand. Developed economies need to analyse the adverse implications of their policies on small states and assist their economies by providing technical and financial assistance. Narayan (2011) also raised concern on the costs associated with most regional trade agreements which do not foresee or implement provisions for revenue sharing or revenue loss compensation.

Finally, the Commonwealth Secretariat concludes that small states also need to voice their concerns globally and ensure that they implement policies that aim to enhance their fiscal position; build their resilience; diversifies their economy; and intensifies their social security. Small states must aim to maintain a healthy financial system and adopt prudent and sustainable macroeconomic policies (Ibitoye, 2009).

For this reason, Hughes (2011) specifies that the international community can aid small states to improve their competitiveness and productivity by devising new strategies. He further argues that a positive impact on economies of small states relies on the international financial institutions' action. Their actions must aim to reduce global volatility and support the needs of small states. Larose (2003) further argues that industrialised nations must recognise the constraints that small states face when integrating in the international financial markets due to their vulnerability, limited human resources and thin financial markets.

Another key determinant of fiscal space in some small states is the cost of doing business. Narayan (2011) raised the “need to reform institutions that have the responsibility of dealing with investors”, since in Pacific small states the costs to start a business is extremely more costly when compared to their neighbouring developed countries and other developing countries. Several small states have succeeded to ameliorate their economic development. Chand (2003) highlights that well-managed small economies have succeeded to outperform other small and larger states. Hence, the main challenge for policymakers is to draw lessons from successful small states and emulate them in less successful small states. However, as Briguglio (*et al.*, 2008) state, “small states may overcome their disadvantages through appropriate policy interventions.” Moreover, monetary and fiscal policies “remain among the few policy levers available to policy-makers, but getting these choices right depends on policy circumstance, institutional constraints, the range of additional policy levers available to governments and some good fortune” (Jayaraman and Narayan, 2011).

The Global Recession on Different Groups of Countries

This section presents the statistical results that were derived from a comparison of the impact of the global recession on different country groups, including small states. The growth patterns of different categories of countries including small states for different time periods between 2001 and 2010 are presented in Table 1. Data for this analysis was retrieved from International Monetary Fund database.² The GDP growth rate of the selected countries groups was worked as a weighted average where the weights were the GDP of each country. The variables used to compute the weighted average growth rates for groups of countries are shown in Appendix 3 in Saliba (2012). From Table 1 it can be seen that different groups of countries performed differently during the period 2001 to

² Available at: <http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/index.aspx>.
The list of countries included in this analysis is shown in Appendix 1 in Table A1 and A2 in Saliba (2012).

2007, which period is being labelled as the normal period for ease of reference. The growth rate for 2008-2009 is being referred to as the growth in the recession year.

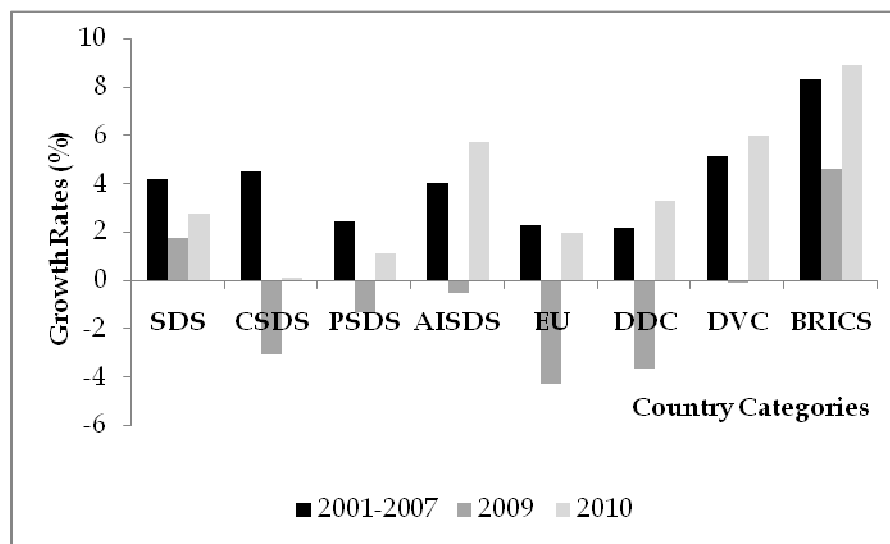
Table 1
GDP Weighted Average Results Growth Rates

Group of Countries	Number of Countries	Acronym	Average 2001-2007	2009	2010
Small Developing States	38	SDS	4.23	1.78	2.78
Caribbean Small Developing States	13	CSDS	4.56	-3.03	0.12
Pacific Small Developing States	11	PSDS	2.46	-1.31	1.14
African and Indian Ocean Small Dev. States	14	AISDS	4.08	-0.51	5.78
EU Member States	27	EU	2.34	-4.27	1.99
Developed Countries	8	DDC	2.23	-3.61	3.32
Developing Countries without BRICS	100	DVC	5.18	-0.02	6.03
BRICS	5	BRICS	8.34	4.66	8.94

Note: The lists of countries in each group are presented in Appendix 2 in Saliba (2012).

Source: World Economic Outlook Database. Available online at <http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/index.aspx>

Figure 1
Real GDP Growth for Different Country Categories*



*Note: Country category acronyms explained in Table 1

During the normal period developing countries (which exclude small developing states) grew at a faster rate than developed countries. The performance of small states overall was mixed with the Caribbean and Pacific small states registering the lowest growth rates. The highest growth rate for small states was registered by the African and Indian Ocean small states. As expected the fastest growing rates were registered by the BRICS (Brazil, Russia, India, China and South Africa). Of interest is that developed countries, including the EU member states, registered relatively low growth rates.

The impact of the recession was also different in the different regions and grouping. The highest negative impact was on the EU member states and the developed countries in general, which experienced an average decline in GDP higher than 5 per cent. The impact on small states, although negative, overall was not as severe as that on the developed countries. The developing countries still registered positive growth rates but these rates were very low.

When one looks at the recovery of 2010 one finds that developing countries recovered faster than developed countries with developed countries registering relatively low growth rates. With regards to small states, the African Indian Ocean small states region registered the fastest growth rates among the small states in 2010.

The main conclusion that emerges from the foregoing analysis is that developed countries performed poorly before and after the recession and were very highly impacted by the 2009 global recession. On the other hand, although developing countries were also impacted by the global recession, they still managed to register positive growth rates albeit very low.

As regards small states the picture is a mixed one. The Caribbean small states were the most heavily impacted by the recession. The least impacted during this period were African and Indian Ocean small states. This group of small states succeeded to register relatively high positive growth rates during 2010. Although the Pacific small states had the lowest GDP growth rates before the recession, they still succeeded to report positive results in 2010.

Statistical Test of the Impact of Monetary Measures

Specification of the Model

The model proposed in this paper is intended to investigate the impact of monetary policy, keeping fiscal policy and other control variables constant, on economic growth of countries, including small states using an equation inspired by the St. Louis model. The original St. Louis model essentially utilised three variables. The dependent variable was represented by a variable for economic activity and monetary and fiscal policy actions represented two independent variables.

The proposed equation is as follows:

$$\Delta Y_t = b_0 + b_1 \Delta M2_t + b_2 \Delta G_t + b_3 CV \quad (\text{Equation 2})$$

Where

- ΔY = annual growth rate in real GDP in 2009/2010
- $\Delta M2$ = annual growth rate in aggregate money M2 in 2009
- ΔG = annual growth rate in real government expenditure in 2009
- CV = control variables (three control variables will be used, namely GDP per capita, size of countries and soundness of banks).

The coefficients b_1 and b_2 are expected to be positive, while the coefficient on the control variables will be explained below.

Economic growth for each small state is represented by annual percentage change in real GDP. The monetary policy variable is captured by change in money supply.³ The fiscal policy is captured by change in government expenditure. It is assumed that the growth rate in 2009-2010 was the result of monetary and fiscal measures taken in 2008-2009, keeping their other factors constant.

While the St. Louis Model used time series data with lag schemes, our model uses cross-section data across countries. This regression model is run for all countries, and for small and large countries separately. Small states are defined as those with a population of about 2 million or less. Small countries from now on will be referred to as small states to distinguish them from larger countries.

The Variables and their Sources

Data for the countries included in the analyses was sourced as follows. Data for percentage changes in gross domestic product at constant prices and data for general government total expenditure in national currency was retrieved from World Economic Outlook database.⁴ Data for 178 countries was available.

For money supply variables, the broad monetary aggregate Money and Quasi Money (M2) was sourced from World Bank online data.⁵ This aggregate comprises the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. Average annual growth rate in money and quasi money is measured as the difference in end-of-year totals relative to the level of M2 in the preceding year. Data for Canada, Ethiopia, Kyrgyz Republic, Norway, Rwanda, Slovak Republic, Taiwan and

³ We have also considered adding a variable representing change in deposit interest rate. Related results are reported in Appendix 3 in Saliba (2012).

⁴ Available online at: <http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/index.aspx>

⁵ Available online at <http://data.worldbank.org/>

Tajikistan was retrieved from their Central Bank Annual Report and checked for consistency. Thus, data for 178 countries was available.

Three control variables will be used namely stage of development (measured by GDP per capita), soundness of banking institutions and size of countries. Data for GDP per capita in thousand US Dollars, representing the stage of development of countries was obtained from World Economic Outlook Database.⁶ It is assumed that growth patterns may be affected by the stage of development of countries, with low income countries having a greater potential for growth, keeping institutions (represented by monetary and fiscal measures) constant.⁷

The second control variable namely Soundness of Banks, was derived from The Global Competitiveness Report for 2010-2011.⁸ Soundness of Banks ranking was available for 137 countries from our list. The Soundness of Banks index was developed by the World Economic Forum as part of the 8th pillar “Financial Market Development” of the Global Competitiveness Index. The index was developed as a response from experts to the following question: “How would you assess the soundness of banks in your country?” The score on this index ranges from 1 to 7, with higher scores indicating greater soundness. It is assumed that unsound banking institutions inhibit economic growth.

Size will be measured by population and GDP per capita in thousand US Dollars prices for 2009.⁹ Data for population and GDP per capita in thousand US Dollars was obtained from World Economic Outlook Database.¹⁰ The relationship between country size and growth will be discussed further below.

A Focus on Small States

We will test whether the impact of small states was different from larger states by using two methods:

- i) Introducing a variable representing population.¹¹
- ii) Segmenting the sample in two, with one sub-sample representing small countries and the other representing large countries.

⁶ Available online at:

<http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/index.aspx>

⁷ We also tried using the World Bank Governance Indicator as a control variable, available online at: <http://www.govindicators.org> but this was highly correlated with GDP per capita.

⁸ Available at: http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2010-11.pdf

⁹ Similar results were obtained when GDP at Current Prices was used as a variable representing size of countries, instead of the size of the population.

¹⁰ Available online at:

<http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/index.aspx>

¹¹ We also used a dummy variable instead of the population variable to represent country size, with 1 for states with a population of 2 million or less and 0 for countries with a population of over 2 million. The dummy variable still indicated that large states had an advantage with regards to growth, keeping everything else constant. However given that population size is a richer variable, in that it more finely captures country size than a dummy variable, we retained the population size variable in the regression equation.

The Reaction Time

In many time series studies different results are obtained by different lag specification as discussed in the section on the literature. In cross section studies the exercise is more straight forward—however there still remains the problem to identify whether a variable in the current year was affected by variables in past years

In our case we assume that the growth rate in 2009/2010 was affected by changes in monetary and fiscal measures during 2009.

Statistical Results

The results of the regression applied to 178 countries¹² are reported in Table 2. It can be seen that both fiscal and monetary measures, the explanatory variables, have a statistically significant effect on GDP real growth rate of 2009/2010, as indicated by the t-statistics.¹³

These results indicate that the economic performance of all countries of the world tended to be influenced by both monetary and fiscal variables, as indicated by the “t” statistics which show that the coefficients on the explanatory variables were different from zero at the 95% level of statistical significance.¹⁴

Table 2
Regression Result 1: $\Delta \text{GDP}_{2009/2010} = f (\Delta \text{G}_{2009}, \Delta \text{M}_{2009})$

Explanatory Terms	Coefficients	Standard Error	“t” Statistic	“p” Value
Intercept	-0.006	0.373	-0.017	0.987
Change in Gov. Exp.	0.046	0.018	2.518	0.013
Change in M2	0.139	0.022	6.332	0.0

Multiple R	0.504
R Square	0.254
Number of observations	178

The correlation coefficient is rather low, indicating that there may have been various other random factors that influenced the rate of growth in 2009/2010.

¹² The list of countries and the relative indicators are presented in Appendix 4 as Table A4 and Appendix 5 as Tables A6-10 in Saliba (2012).

¹³ In this paper, the term “statistically significant effect” means that the computed value of the t-statistic is higher than the critical value of the same statistic at the 95% level of significance, indicating that the estimated coefficient on the explanatory variable is likely to be different from zero at that level of significance. We also performed additional diagnostics tests relating to multicollinearity and heteroscedasticity, but there were no major problems in this regard. The results of these diagnostic tests are reported in Saliba (2012).

¹⁴ It should be noted that in our sample there were a number of outliers which if removed would have improved our results in terms of t-statistics, however we opted to retain them.

We repeated the exercise, with the stage of development of countries, measured by GDP per capita in thousand US dollars for the year 2009, as control variable. The results are shown in Table 3. It can be seen that the GDP per capita variable is statistically significant and the correlation coefficient has improved.¹⁵

The results suggest that the three explanatory variables influenced the rates of growth of countries, as indicated by the “t” statistics which show that the coefficients on the explanatory variables were different from zero at the 95% level of statistical significance.

Table 3
Regression Result 2:
 $\Delta \text{GDP } 2009/2010 = f (\Delta \text{G}_{2009}, \Delta \text{M}_{2009}, \text{GDP Per Capita}_{2009})$

Explanatory Terms	Coefficients	Standard Error	“t” Statistic	“P” Value
Intercept	0.761	0.463	1.644	0.102
Change in Gov. Exp.	0.043	0.018	2.385	0.018
Change in M2	0.119	0.023	5.224	0.0
GDP Per Capita	-0.43	0.016	-2.711	0.007

Multiple R	0.533
R Square	0.284
Number of observations	178

Interestingly the sign on the GDP per capita variable is negative. This reflects the poor growth rates in the EU and North American countries and Japan when compared to the developing world, as explained earlier.

It can be hypothesised that the growth rate of countries was affected by the state of the banking system. For this purpose we have taken an index entitled Soundness of Banks extracted from the World Competitive Index for 2010.¹⁶ Unfortunately this index was only available for 137 countries from our list.¹⁷ Regression results with soundness of banks and GDP per capita as control variables is presented in Table 4.

¹⁵ We have also considered adding a variable representing change in interest rates, so as to capture changes in the cost of borrowing funds, which is another tool of monetary policy. The best variable that we could use for a large number of countries was the Deposit Interest Rate (available at <http://data.worldbank.org/>). Given the correlation between changes in money (ΔM2) and changes in deposit interest rate (ΔDR), we combined the two variables ($\Delta \text{M2} + \Delta \text{DR}$) in the regression equation. The results for the equation $\Delta \text{GDP} = f (\Delta \text{G}_{2009}, \Delta \text{M2}_{2009} + \Delta \text{DR}_{2009}, \text{GDPPC}_{2009}, \text{Population}_{2009})$ are reported in Appendix 3 in Table A4 in Saliba (2012). It can be seen that the results do not change much.

¹⁶ The ‘soundness of banks’ index was developed by the World Economic Forum as part of the 8th pillar “Financial Market Development” of the Global Competitiveness Index. The index was developed as a response from experts to the following question: “How would you assess the soundness of banks in your country?” [1 = insolvent and may require a government bailout; 7 = generally healthy with sound balance sheets]. The Soundness of Banks data was sourced from The Global Competitiveness Report 2010-2011, available at: http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2010-11.pdf. The score on this index ranges from 1 to 7, with higher scores indicating greater soundness.

¹⁷ The list of countries and the relative indicators are presented in Appendix 4 as Table A5 in Saliba (2012).

Table 4
Regression Result 3:
 $\Delta \text{GDP } 2009/2010 = f(\Delta G_{2009}, \Delta M_{2009}, \text{Soundness of Banks Score}, \text{GDP Per Capita } 2009)$

Explanatory Terms	Coefficients	Standard Error	"t" Statistic	"P" Value
Intercept	-3.428	1.652	-2.075	0.040
Change in Gov. Exp.	0.101	0.026	3.937	0.0001
Change in M2	0.094	0.025	3.681	0.0003
Soundness of Banks Score	0.822	0.316	2.604	0.010
GDP Per Capita	-0.048	0.016	-3.036	0.003

Multiple R	0.589
R Square	0.347
Number of observations	137

The results suggest that the four explanatory variables influenced the rates of growth of countries, as indicated by the "t" statistics which show that the coefficients on the explanatory variables were different from zero at the 95% level of statistical significance.

It should be noted that soundness of banks is statistically significant thus implying that countries with sound financial institutions performed better in terms of GDP growth rates in 2009-2010.

The results so far would seem to suggest that both monetary and fiscal measures are important as an explanation of growth and that lower income countries tended to perform better during the period in consideration. The results also indicate that soundness of banks was an important explanatory variable. The problem with this variable is that it is mostly available for larger states, and therefore we could not use it when we segmented the sample into a large country sub-sample and a small-country sub-sample.

Regression Results for Small States

In order to test the hypothesis that the GDP real growth rates may have also been affected by the size of countries, we have taken two approaches. One was to add a variable representing the population of each country and the second was to segment the sample into two components, one for small states and the other for the remaining states.¹⁸

The small states sample consisted of countries with a population of 2 million or less and the other sample contained countries with a population of more than 2 million.¹⁹ The results of including a population size variable are shown in Table 5.

¹⁸ It should be noted that the sample of small states was much smaller than that for large states, and this may have affected the statistical significance of the estimates.

¹⁹ Although small states are usually referred as those with a population of 1.5 million or less, we have decided to take 2 million population as a cut off point to enlarge the sample somewhat.

Table 5
Regression Result 4:
 $\Delta \text{GDP } 2009/2010 = f (\Delta G_{2009}, \Delta M_{2009}, \text{GDP Per Capita}_{2009}, \text{Population}_{2009})$

Explanatory Terms	Coefficients	Standard Error	“t” Statistic	“P” Value
Intercept	0.672	0.457	1.470	0.143
Change in Gov. Exp.	0.040	0.018	2.265	0.025
Change in M2	0.114	0.022	5.079	0.0
GDP Per Capita	-0.042	0.015	-2.731	0.007
Population	0.004	0.002	2.511	0.013

Multiple R	0.556
R Square	0.310
Number of observations	178

The results indicate that the explanatory variables influenced the rates of growth of countries, as indicated by the “t” statistics which show that the coefficients on the explanatory variables were different from zero at the 95% level of statistical significance.

The results indicate also that the size of countries does matter. Population is a statistically significant explanatory variable, suggesting that larger states tended to register higher growth rates. This result may indicate that larger countries would have tended to register higher growth rates, if monetary and fiscal measures are kept constant. It may be possible, therefore, that small states were disadvantaged in terms of growth by their small size.

Segmenting the Sample

When the sample was segmented in two: large states and small states (the latter being represented by states with a population of up to 2 million), an interesting result emerged as shown in Table 6, 7 and 8.

Table 6
Regression Result 5 for Small States:
 $\Delta \text{GDP } 2009/2010 = f (\Delta G_{2009}, \Delta M_{2009}, \text{GDP Per Capita}_{2009})$

Explanatory Terms	Coefficients	Standard Error	“t” Statistic	“P” Value
Intercept	-1.328	0.875	-1.517	0.137
Change in Gov. Exp.	0.032	0.030	1.096	0.279
Change in M2	0.226	0.050	4.515	0.0001
GDP Per Capita	0.011	0.030	0.362	0.719

Multiple R	0.611
R Square	0.374
Number of observations	45

It can be seen that in the case of small states the effect of monetary and fiscal measures remained positive, however the fiscal measure lost its statistical significance. The government expenditure's loss in statistical significance suggests that monetary measures were more important than fiscal measures in explaining the growth rates of small states. In the case of large states both variables remained statistically significant.

Table 7
Regression Result 6 for Small States:
 $\Delta \text{GDP } 2009/2010 = f (\Delta \text{G}_{2009}, \Delta \text{M}_{2009})$

Explanatory Terms	Coefficients	Standard Error	"t" Statistic	"P" Value
Intercept	-1.154	0.725	-1.592	0.119
Change in Gov. Exp.	0.032	0.029	1.088	0.283
Change in M2	0.222	0.048	4.591	0.0

Multiple R	0.610
R Square	0.372
Number of observations	45

This would seem to be a surprising result, given that in some studies, the effect of monetary policy in small states was thought to be weak due to their thin markets and weak transmission mechanism (Ibitoye, 2009; Jayaraman, 2006; Jayaraman 2011a; Schembri, 2008).

It should be noted that the GDP per capita variable is not statistically significant in the case of small states. For this reason the regression for small states was redone without GDP per capita variable. The results shown in Table 7 are not much different from those of Table 6.

The regression results for large states are shown in Table 8. It can be seen that the results indicate that the coefficients on all three explanatory variables are statistically significant.

Table 8
Regression Result 7 for Large States:
 $\Delta \text{GDP } 2009/2010 = f (\Delta \text{G}_{2009}, \Delta \text{M}_{2009}, \text{GDP Per Capita}_{2009})$

Explanatory Terms	Coefficients	Standard Error	"t" Statistic	"P" Value
Intercept	1.789	0.527	3.392	0.001
Change in Gov. Exp.	0.058	0.022	2.593	0.011
Change in M2	0.069	0.025	2.743	0.007
GDP Per Capita	-0.071	0.018	-3.958	0.0001

Multiple R	0.554
R Square	0.307
Number of observations	133

One explanation why fiscal policy in small states was found to be less effective than monetary policy in the recovery process following the 2008-2009 global recession, could be that with relatively high debt ratios, small states, in general, had limited room for manoeuvre in resorting to increase government expenditure. Regressing gross debt/GDP ratio against population and against GDP (indicators of country size in terms of population and economic magnitude) it emerged that the relationship is negative, suggesting that there was a tendency for larger countries to have a lower debt ratios. In fact, it was found that the average debt ratio for small countries (up to 2-million population) is 59 per cent, while the average debt ratio for large countries (more than 2 million population) is 50 per cent.

The results indicate that during the economic recovery following the 2008-2009 financial crisis, monetary policy proved more effective in small states. This may be due to the fact that small states generally used conservative banking practices and therefore were not too much exposed to contagion, rendering their banking sector relatively resilient when compared to the adventurous banking practices in larger countries. In this regard, Dwight Venner (2011) argues that Eastern Caribbean Small States have strengthened their Central Bank's efforts in enhancing their regulatory, monitoring and supervisory frameworks. In addition, according to Favaro (2008) monetary unions and the use of a common currency were introduced in West Africa and Central Africa.

Apart from reducing costs such measures also succeeded to improve monetary policy, professional service level and quality of supervision. In the Mediterranean, Malta and Cyprus joined the European Monetary Union in 2004 and the Eurozone in 2008. Jayaraman (2006) states that by opting to form part of a monetary union small states can attain "(a) a credible mechanism for defending a fixed exchange rate; (b) macroeconomic stability; (c) confidence in the monetary system; and (d) greater incentives for inflows of foreign direct investment, thereby promoting trade, investment and growth."

Jayaraman and Choong (2012) investigated four Pacific Island States, namely Samoa, Solomon Islands, Tonga and Vanuatu, to analyse money's role in output growth and the determination of prices in these economies with independent currencies under fixed exchange rate regimes. The authors concluded that both aggregate money variable M2 and the exchange rate had a significant role in determining output and prices in these small states. Moreover, the monetary variable's effect on output and prices resulted more dominant in these small states.

Regarding an Indian Ocean small state, namely Mauritius, Bheenick (2011) argues that the monetary policy framework in this small state is succeeding to achieve commendable credibility.

Main Conclusion on Statistical Results

Overall the results indicate that:

1. Both monetary and fiscal measures were important in explaining the recovery after the global recession when all countries, small and large, developed and developing, are considered as a group.
2. Developing countries seem to have recovered better than developed countries after the global recession.
3. Both large developing countries and small developing countries on average, recovered well after the global recession, however, the recovery of larger developing countries was on average faster.
4. It appears that the size of countries does matter when explaining growth.
5. There appears to be a difference between large states and small states with regard to the effect of fiscal and monetary measures, with fiscal measures having a weaker effect in small states, when compared to large states.
6. Also the stage of development does matter, as the variable representing GDP per capita was found to have a negative effect on growth, suggesting that, *ceteris paribus*, developing countries registered faster rates of growth than developed countries after the global recession.²⁰
7. There was a relationship between the soundness of the financial institution and the recovery of countries after the global recession.

In the previous section of this paper it was found that developed countries were more highly impacted than the other group of countries by the 2009 global recession, and this could be explained by their high financial sector exposure increasing the risk of contagion. This is evident from the soundness of banks indicator. The overall indication is that a number of developed countries had a lower score when compared to many developing countries and many small states. For example Ireland's score result in the soundness of banks score was only 2 (one of the lowest in the list of countries). Since the soundness of banks data was only available for a small number of small states we were unable to investigate the difference between large and small states.

Conclusion

Monetary and fiscal policies are the blood stream of the economic machinery of many small states. This paper has attempted to shed light on whether monetary policy measures were effective in enabling small states overcoming the recession. We tried to do this through a desk study, using the regression analysis from published data.

Given the high degree of economic openness of small states and their relatively weak institutional setups leading to a weak transmission mechanism, the role of monetary policy is often thought to be limited, especially in economies with fixed exchange rate regimes. On the other hand, fiscal policy measures may also be ineffective in small states due to delays and inefficiencies involved in the implementation of the policy.

²⁰ GDP per capita in richer countries tended to register lower growth rates as indicated by the performance of Western Europe.

According to our regression analysis both monetary and fiscal measures were found to have had a statistically significant effect on economic growth during the immediate years post 2008/2009 global recession. This was also found to be the case when a number of control variables, e.g. GDP per capita and soundness of banks were introduced in the regression equation.

The econometric analysis was also used to test whether the impact of the global recession on small states was different from that on larger countries by introducing a variable representing size of countries. The econometric results reveal that small states have been impacted differently from larger ones.

The regression results indicate that when the population variable was introduced, it was statistically significant. In other words, larger countries tended to register higher growth rates, during the particular period. As a corollary, it may be argued that small states are disadvantaged in view of their size, but the growth rate they have registered was influenced by their economic governance, including the monetary and fiscal measures they have adopted.

When the sample of countries was segmented into large and small states, it was found that in the case of large states, both monetary and fiscal measures remained statistically significant, whereas in the case of small states, the fiscal variable lost its statistical significance, possibly suggesting that monetary measures were more important in generating growth in small states. As argued, this may seem to contradict the argument that monetary policy in small states may not be effective due to the possible weak transmission mechanisms and thin markets. However, other authors also suggest that monetary policy is becoming increasingly effective in small states with institutional modernisation.

The conclusions have to be interpreted with some caution because they pertain to a somewhat unusual period of time characterised by a global recession. However, they do show that monetary and fiscal measures in general have had an important role during the economic recovery of this financial crisis.

Way Forward for Governments and Policymakers

Good economic governance in small states is imperative since it enables them to build their economic resilience in the face of the external adverse shocks. Such governance requires the appropriate use of fiscal and monetary measures, and the results of this study indicate that in general small states would seem to have adopted the right policy framework. This of course is a generalisation, because the statistical model that we adopted produces average tendencies, with non-systematic affects being relegated to the error term. In the case of our study, the error term would capture the many random factors that may have had an effect on economic growth during the period under consideration.

The Need for Further Study

Research on small states has grown at a steady pace since the 1990s and there is now an extensive body of literature on the economies of such states. In recent years, the focus would seem to have shifted from showing that small states are highly economically vulnerable to their need for resilience building to enable them to withstand the downside effects of their high degree of exposure to external shocks. A sound policy framework involving monetary and fiscal policies is important for this purpose. However, studies on these policies, particularly monetary policy, are not as extensive as one would have liked, and the literature review included in this study, would have benefited from additional publications in this regard. There is therefore the need for more research in this area of economic governance of small states, particularly with regards to their constraints arising from thin markets and weak institutional setups.

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